DOCUMENT RESUME

ED 034 827 UD 009 332

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TITLE The Sharper Minds Program: Group Problem-solving for the Disadvantaged.
INSTITUTION Institute for Juvenile Research, Chicago, Ill.
REPORT NO RR-Vol-6-No-7
PUB DATE 69
NOTE 17p.

EDRS PRICE EDRS Price MF-$0.25 HC-$0.95
DESCRIPTORS Critical Incidents Method, *Disadvantaged Youth, *Elementary School Students, *Group Discussion, *Problem Solving, *Relevance (Education), Teaching Techniques
IDENTIFIERS Sharper Minds Program

ABSTRACT

This report describes a group problem-solving approach to educating disadvantaged elementary school children. It is suggested that aggressive verbal exchange and active solution to real life problems are potent tools for helping disadvantaged students become active learners and creative participants in society. Methods for conducting such a group following the so-called Sharper Minds Program are described stepwise, along with suggestions for kinds of problems to be used. (KG)

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The Sharper Minds Program:

Group Problem-Solving for the Disadvantaged

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RESEARCH REPORT
1969 Vol. 6 No. 7

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The Sharper Minds Program:

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Let us assume that in the year 2000 we would like to see a growing, open society in which individuals are able to experience increasing alternatives for self-expression and accomplishment and in which a large proportion of the population will have the skills and inclinations required for cooperative solutions to social problems and the creation of a truly just social order. Let us further assume that the group now labeled "culturally disadvantaged" must participate in this new social order, if, indeed, any order is to be realized.

Accepting this assumption, the question is, "What does an individual need to participate in such a social order?" We suggest that, among other things, he will need to be a problem-finder and a problem-solver. He will need the ability to 1) obtain information, 2) utilize information to identify problems, 3) develop solutions to these problems which involve creative synthesis and a high level of cognitive integration,[1] 4) make errors comfortably and continue to integrate solutions, 5) put the plan into action,[2] and 6) remain open to new information.

In order to be a problem-finder and problem-solver, he will need to possess three additional attributes: he must be able to communicate...to be open to influence from his environment and to be able to transmit his own ideas effectively; he must be able to identify with other human beings...to have empathy in the sense of being able to take the role of the other;[3] and finally, he has to care...to have an investment in the growth and welfare of the world around him.

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1. Schroder, Harold M., Driver, Michael J., & Streufert, Siegfried. Human Information Processing. New York: Holt, Rinehart & Winston, 1967.

2. Thelen, Herbert A. Education and the Human Quest. New York: Harper and Bros., 1960.

3. Lerner, Daniel. The Transformation of Traditional Society. Glencoe, Illinois: Free Press, 1958.
   Mead, G.H. Mind, Self and Society. Chicago: University of Chicago Press, 1934.

We believe that these attributes form an integrated whole, and the program proposed here relates to the development of this whole. We further believe that the very process of being alive involves effective problem-solving and a problem-solving attitude.

An educational method that is going to be effective must fully respect the particular needs, predispositions, and styles of relating that are peculiar to the students. With this in mind, and given the problem-solving syndrome suggested above, we suggest the following proposition:

Group problem-solving, involving aggressive argument and active solutions to real life problems, can be a highly effective method for meeting both the educational needs and cultural predispositions of children from economically disadvantaged families.[4]

This conclusion is based on a series of educational experiments entitled the Sharper Minds Program, first developed in cooperation with the Better Boys Foundation, a neighborhood center serving a lower-income Negro population on the West Side of Chicago.[5] The initial experiments, conducted with boys aged 9 to 11, evoked such enthusiastic response on the part of both students and instructors that the program was extended to children of both sexes ranging in age from 8 to 14. In most cases, the groups were age- and sex-homogeneous, and did not exceed 15 members.

The striking growth observed in the areas of self-expression, self-confidence, creativity, and logical thinking on the part of numerous children, many of whom responded very poorly to the regular school curriculum, warrants presentation of this initial report. Currently the program is being adapted for classroom use, and evaluated more rigorously than was possible in the earlier phases.

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4. Group problem-solving may be equally suitable for children of more affluent backgrounds. The point made here is that these methods will work with the disadvantaged, whereas the more traditional methods seem to be inadequate.

5. We wish to thank the Board of Directors of the Better Boys Foundation for their generous financial support of the program, and especially Mr. Warner Saunders, Executive Director, who in numerous ways helped to facilitate the growth of the program.

I. The Sharper Minds Program in a nutshell.

The basic unit of the program is the problem-solving group, led by one or more instructors. The group is presented with a problematic situation in which individuals with whom the students can identify are confronted with difficult circumstances. The group reaches some agreement as to the most important problem confronting the protagonists in the situation, and then moves through a process of information-seeking, posing of solutions, aggressive criticism, and modification of solutions, ultimately evolving one or more feasible solutions to the problem.

The instructor acts as a coach and as a source of information. As a coach, he helps the students to formulate relevant problems, ask relevant questions, and explore the processes of rational thought. As a source of information, he responds to questions concerning the situation under discussion.

Respect for the students' intellect is another major feature. The method is based on the assumption that all human beings, at least after the age of 7, are given to thinking in rational terms and that most human beings have a great deal more creative problem-solving ability than is apparent. Another assumption is that one of the most important things we can do in helping to develop another human being is to communicate to that person that what he has to say is intrinsically worthwhile and can add to one's own understanding of the world. Hence the instructor approaches the students as sources of useful ideas and encourages them to view each other as having intrinsically worthwhile ideas.

II. Needs and predispositions of culturally disadvantaged students.

Our next question is, "Why should such a program work with culturally disadvantaged students?" Our answer is threefold.

1. Respect for the native intelligence ("mother wit") of the individual evokes a level of interest and involvement on the part of both student and

instructor that does not emerge in the book-dominated atmosphere of the traditional classroom.

2. The method taps a basic human need for effective, self-activated involvement with the environment; an urge to emerge as oneself in an effective interchange with one's world.[6]

3. It appeals to many of the themes of urban lower-class life. First, the problematic situations presented to the students contain elements of action and excitement also found in the active, motoric nature of lower-class interests and behavior patterns. Second, the emphasis in the program on aggressive verbal exchange corresponds to an emphasis on verbal aggression in the street culture. In the black subculture, this activity is referred to as "signifying" and is characterized by attempts to outwit and dominate another through verbal assaults. The "dozens" (verbal banter referring to one's mother and, to a lesser extent, one's father) is a special form of this verbal aggression. Third, many of the local heroes of the thoroughly indoctrinated street child are "problem-solvers" par excellence. These include a wide range of "hustlers" who appear to live by wit and social competence rather than by "work" per se, but whose endeavors actually require a good deal of concentration, reflectiveness, self-control, self-application, and overall problem-solving ability. On the peripheries of the hustler category is the man who holds a regular job, but who also has one or more "hustles" (legal or illegal) on the side, often necessary to support his family. Fourth, the program builds on intellectual strengths in the area of divergent (imaginative) thinking. A recent study of fifth-grade youth of central Harlem

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6. White, Robert W. Ego and reality in psychoanalytic theory. Psychological Issues 1963, 3(3, No. 11).
Rogers, Raymond. Coming Into Existence. New York: World Publishing Company, 1967.

illustrates this point. "While the low achievers from a disadvantaged environment did show greater deficiencies than the high achievers, they have certain capabilities and strengths which could be built upon. They were responsive and could produce ideas, as demonstrated in the Rorschach, in Story Telling, and in response to the Uses for Objects task. Both in verbal and non-verbal situations, many individuals show a high level of imaginativeness and capacity to use the stimulus material properly."[7] Finally, the emphasis on groupness in the street culture is played out in the group problem-solving process.

The program builds on all of these predispositions, moving the child from "signifying" to verbal criticism, from attacking people to attacking ideas, from simple groupness to teamwork. It builds on the desire to be "cool", using this to develop reflectiveness. It builds on strengths in divergent thinking in order to build convergent thinking. It utilizes what is immediately interesting to develop broader, deeper interests and the predisposition to take an inquiring stance toward one's environment. In short, the program cuts through the alien cultural overlay of the school and relates directly to the individual's strengths, interests, and needs.

III. The method.

Before moving into a discussion of the method, let us briefly review our aims. We have said that key attributes for participating in a free and open society will be problem-solving skills, accompanied by an ability to communicate, an ability to take the role of the other, and a caring for the welfare of the world around one.

Expressed in more dynamic terms, the aims of the program are to develop openness and assertiveness: openness to new stimuli, new ideas, new people, new ways of construing things and the relation between things, and new ways of doing

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7. Davidson, Helen, & Greenberg, Judith W. School Achievers from a Deprived Background. New York: City College of the University of New York, 1967, p. 129.

things; openness that comes from an internal freedom to see things in new ways or to accept other people's ideas and perceptions; and assertiveness in communicating one's ideas to others, in seeking information, in questioning the logic of another's position, and in acting to carry out an idea. While seeming to be contradictory principles, openness and assertiveness actually form a dynamic fusion which underlies communication with one's environment, the main objective of the program.

In this context, there is a very important distinction to be made between "communication" and "debate." Communication, as defined here, involves both openness to influence and readiness to influence. Taking interpersonal communication as an example, true communication can be said to take place when each party is attuned to the meaning of the other party's message, receives that message, and is open to the possibility of one's own perceptions being influenced by that message. Each party is also willing to communicate his own thoughts. "Debate," on the other hand, contains only one of these elements. In debate, one's object is to influence the other person, not to permit oneself to be open to influence. The spirit of this distinction applies to all forms of communication with one's environment. It is not confined to interpersonal communication.

As regards this distinction between communication and debate, we suggest that lower-class culture is basically structured on a debating form of relatedness: an emphasis on physical and verbal dominance, and relatively less emphasis on the feelings, motivations, and ideas of others.[8] The aims of the suggested program are to strengthen certain adaptive aspects of this debating stance, but ultimately

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8. Bernstein, Basil. Social class and linguistic development. In A. H. Halsey, J. Floud, C.A. Anderson (Eds.), Education, Economy and Society. New York: Free Press, 1961, pp. 288-314.
Gans, Herbert J. The Urban Villagers. Glencoe; Illinois: Free Press, 1962.

to place major emphasis on the development of communication abilities and motivation to communicate. For we believe that communication in its many forms lies at the source of human development.

In the proposed method, communication takes place through four types of relationships: between teacher and student, between student and student, between teacher and the world around him, and between student and the world around him. All four of these can be taking place simultaneously. The teacher, in taking an open and assertive stance toward his world, provides a crucial model for student behavior. Ideally,the students will experience the teacher communicating with other adults. For this reason, it is desirable to have teachers work in pairs from time to time.

Our hypothesis is that if the teacher fosters communication in these four basic relationships, openness and assertiveness will develop in children. Correspondingly, creative ability and abstract thinking ability will develop.

The theory underlying this hypothesis suggests that there are two properties intrinsic to human nature: 1) a tendency toward self-assertive, exploratory behavior, which, if allowed to develop, will result in crystalization of assertiveness and openness; and 2) a joy in system building, in experiencing order in the world and in the relationships between things. These two properties interlock in a single process.

We hold, further, that the period previous to adolescence is the best time to develop these attributes. Ideally, they should be developed from birth onward, but the period of latency (ages 7 to 11) is the period of human development when the child is most free to concentrate and learn. It is the period when the child is best equipped to learn the basic technology of his culture. His curiosity, wish to learn, and wish to know are enormous.[9]

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9. Erikson, Erik. Identity and Youth in Crisis. New York: W.W. Norton & Company, 1968.
Evans, Richard I. Dialogue with Erik Erikson. New York: Harper and Row, 1967.

The method involves three operating principles:

1. The teacher emphasizes the process of posing questions and seeking answers to questions. Emphasis is placed on the posing of problems for which the solutions entail plans for action. This action emphasis most closely fits the propensities of culturally disadvantaged students, especially boys. The emphasis on action problems (questions) in no way rules out other kinds of questions, however.

2. The teacher constantly remains open to the ideas of the students and creates an atmosphere which encourages the students to be open to each other's ideas.

3. The teacher encourages the students to take an assertive stance in posing questions and presenting their own point of view.

The sequence suggested below is one way of implementing these principles. It is a sequence that emerged out of several years experimentation with the Sharper Minds Program, and at best, is just one example of how the ideas set out above might be implemented in a group situation.

The sequence consists of seven steps:

1. Presentation and clarification of the situation.
2. Formulation of the problem.
3. Initial solutions.
4. Information-seeking.
5. Re-examination of the problem and major solution development.
6. Criticism, modification, and/or synthesis of solutions.
7. Critique of the session by all involved.

Step 1. Presentation and clarification of the situation.

A problematic situation is presented to the group, verbally and/or in written form, by the instructor, a visitor, or one of the students. The account contains enough information to allow for formulation of a problem. The instructor helps the students locate and grasp the key concepts in the situation. If a

geographic site other than the students' own neighborhood is involved (i.e., a different part of the city, world, universe), it is located on a map.

The problematic situation may be a very familiar one to the students. For example: "Your mother has sent you to the corner grocery store with $.75, which is barely enough to buy all the things she has told you to buy. As you approach the store, you see six older boys standing in front of the store. One of the boys steps out and says, 'Give me a quarter, man'."

Or the situation may be more distant. "You are the owner of a large farm in the Amazon valley of Brazil. Every seven years a monstrous army of very large, carnivorous ants ravages the area in which your farm is located, eating everything, vegetable or animal, in its path. This is the year of the ants, and you find that a huge army of ants, two miles wide and ten miles long, is moving toward your farm and will reach you within three days (based on a story by C. F. Stephenson entitled Leiningen and the Ants)."

While these two situations are very different, they both appeal to the interest of the child, and will in most cases produce intense involvement.

The problematic situation should allow for the formulation of several problems. This kind of flexibility is closer to real life and also provides for discussion of the relation of one problem to another. At the same time, the situation should not be so vague as to allow for the generation of too many problems or no problems at all.

Step 2. Formulation of the problem.

Members of the group suggest as many problems as they can see in the situation, and these formulations are written on the board by the instructor or by one of the students. Problems are always stated in the form of a question and are posed in terms of action. "What should I do?" "How can I get past the older boys and into the store?" "Should I stay or leave the farm?" "How can I save the farm?" "How can I destroy the ants?"

The instructor then helps the class to weed out duplications or to see that some problems are logically prior to or include others.[10] This discussion regarding the relevance and/or relative importance of problems may be lengthy and is a crucial aspect of problem focus.

Finally, the class determines which problem they wish to discuss. They understand that they can always return and take up another problem later, but that they must accept the discipline of dealing with one problem at a time.

Frequently, students will anticipate the problem and offer solutions during the problem-formation stage. In this case, the instructor explains to the student the difference between a problem and a solution, and indicates that formulation of solutions must wait until the problem is established.

Step 3. Initial solutions.

Each student works alone on possible solutions. Students are encouraged to write down their ideas during this period of reflection, which lasts between 30 seconds and several minutes, depending on the propensities of the group.

Step 4. Information-seeking.

The students ask as many questions as they can concerning details of the situation that might help them to build or modify solutions. In the sequence being described, this is the only point at which they can get information, so the motivation to ask as many questions as possible is considerable.

Questions will deal with material resources, human resources, relations between people, and individual characteristics and feelings. For example, in the grocery store case, if the problem is, "How can I get by, get the groceries, and get out safely?", relevant questions might be: "How far away is the house? Where is the money? Do I know any of the boys? Is there anyone else around? Do I know them?

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10. For example, in the Amazon situation, there is a complex relationship between the problem, "Should I stay or leave?" and the problem, "How can I save the farm?" On one hand, a decision to leave would eliminate the need to consider effective methods of dealing with the ants. In this sense, the first problem is logically prior to the second. On the other hand, a feasible solution to the second problem would no doubt influence one's answer to the first problem.

Do I know the storekeeper? What will my mother do if I come home without the groceries?"

In the Amazon case, if the problem decided upon is, "How can Leiningen save the farm?", relevant questions might be: "How many people are there on the farm with Leiningen? Have they had any experience in fighting ants? Are they scared? What kind of equipment does he have (e.g., bulldozers, shovels, etc.)? How big is the farm? What shape is it? Is there a body of water connected to the farm or nearby? What is its location? What direction are the ants coming from? Is there any radio communication outside? How close is the nearest settlement? Is there any gasoline?"

If the problem were, "Should he stay or leave?", many of the same questions would be relevant, but a whole host of additional questions concerning Leiningen's own feelings, relative risks, etc., would be significant.

During this information-seeking period, the instructor guides the students toward asking relevant questions by posing broad questions to the students. Through repeated experiences of having or not having sufficient information for later phases of the sequence (Steps 5, 6, and 7), students tend to grow rapidly in their questioning skills.

By suggesting new types of questions, the instructor tries to stretch the minds of the students. He forces them to consider factors and relationships that they had never considered. This process begins at Step 2 and becomes increasingly more important as the sequence progresses.

A special form of the mind-stretch is the <u>empathic stretch</u> in which the instructor pushes the students toward new understandings of human differences and the relevance of those differences. For example, if the problem concerns food shortages in India, and the students discover through questioning that there are thousands of cows in the area, the instructor would lead them to ask questions about the religion of the inhabitants and the dietary values held by that religion. If

the problem concerns human relationships, then the instructor guides the students toward asking questions about the feelings, values, and value conflicts of the people in the situation. In addition, through having to consider the contrasting opinions of his own classmates, the student deepens his empathic ability in another way and also develops his ability to communicate and cooperate with others. Numerous opportunities exist for stretching the empathic horizons of the student, starting with the initial design of the problematic situation.

Another form of mind-stretch is achieved through an emphasis on the long-range consequences of particular lines of action. This form of exchange comes more easily after the group has had some experience in the problem-solving process.

Step 5. Re-examination of the problem, and major solution formation.

The instructor asks whether the students still feel that the problem chosen in Step 2 is the most relevant problem. Some discussion takes place on this subject and a decision is reached.

The students are then divided into two or more teams of five persons or less. These teams work out solutions by themselves, first brainstorming ideas and then narrowing down the alternatives through discussion.

Step 6. Criticism, modification, and/or synthesis of solutions.

The group is reconvened and a representative from each team presents his team's solutions to the rest of the group members, who proceed to pose questions. Each representative must defend his team's solutions to all questioners. Following this, the defense of the solution is opened up to the whole group. This process continues until all the teams have presented their solutions.

Frequently, the participants will assume some bit of information which was not actually elicited during the information-seeking period. Normally, other students are quick to point up such false assumptions, but the instructor is always ready to do so.

The instructor insists on logic and relevance. He himself frequently becomes deeply involved in the course of the argument, and may question or defend a solution. At all times, the instructor communicates the message that the group is attacking ideas rather than people, and that it is through systematically thinking up and attacking ideas that one arrives at better and more effective ideas.

Through this process of criticism, solutions are amended, modified, or dropped. With time, the students become increasingly skilled in the art of communication and develop increasing respect for relevance and logical argument.

Step 7. Critique of the session by all involved.

The instructor conducts a general discussion of the various solutions with the aim of developing certain ones further. He asks students to express their opinions concerning the best solution and requires them to justify their position. He makes the students aware of vital information which they neglected to ask during the information-seeking phase, and helps them to see that securing such information would make it possible to find more effective solutions or arguments for the solutions. Finally, he and the students suggest new problems that were opened up by the discussion. In general, he helps the students to integrate the problem-solving experience and points them toward new experiences. As the students mature in problem-solving ability, they increasingly take over the role of critic.

The sequence suggested above is just one way of combining the basic principles of problem-solving (problem-focus, solution-formation, information-seeking, criticism, and modification). Because Steps 3 through 7 follow a formula, some distortion of the natural interaction between these principles occurs. Yet the advantage to be found in the discipline imposed by some externally imposed structure would seem to be greater than the disadvantages.

As a logical extension of the problem-solving process, students actually carry out solutions to problems concerning the school, the community, or their own private

lives. Such solutions can range from physical construction to instituting new social arrangements. A series of such activities, if successful, can result in significant growth and internalization of the problem-solving approach.[11]

One of the most important factors in the method is the ideology of problem-solving, which eventually becomes part of the student's self-concept. The term "Sharper Minds" usually appeals to students (especially students at the elementary school level). "I have a Sharper Mind"; "We are a Sharper Minds group"; "I used my Sharper Mind". In order to make this a part of the student's self-concept, the instructor must constantly communicate his faith in the student's ability to think rationally, and this involves, among other things, seeking out the student's ideas and helping to build them into effective plans for action.

Once the students have internalized the spirit of the various Sharper Minds activities they should be encouraged to take major roles in creating problematic situations, presenting the situations, writing ideas on the board, conducting the sessions, and leading special exercises.[12]

The success of a problem-solving session rests on two factors: the instructor's active acceptance of the principles of openness and assertiveness, and the particular materials that are used. The mark of good curriculum material is its power to evoke the active involvement of the students. This involvement takes place when the students feel a sense of challenge. Response to challenge seems to occur when three

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11. Alternatively, the students can be presented with a problematic situation being experienced by an outsider, ideally a successful member of the same ethnic group. The students develop solutions to the outsider's problem and then visit the individual at his place of work, where they have the exciting experience of discovering how the solutions which they had developed independently compare with the ones actually used.

12. A number of exercises have proven effective in teaching some of the skills and orientations required in the Sharper Minds format. One of these is a procedure called "Agree and Disagree" in which someone makes a statement to the group and requests that they shout out "agree" or "disagree". Students are then asked to give a detailed rationale for their agreement or disagreement.

criteria are met: 1) The situation suggests a clear and imminent problem which must be solved. 2) Solutions to the problem do not seem to be easy, but there is a tantalizing feeling that some solution is possible. 3) The students can identify with the characters in the situation. This does not mean that the problematic situation must always deal with familiar scenes and characters, nor does it imply that familiar scenes and characters are always of interest. The situation must, however, tap certain major themes in the students' own experience which carry some emotional loading. One way to discover these themes is through trial and error, simply noting which situations arouse interest and involvement and which do not. Another method is to analyze the situations which the students themselves develop. One of the most effective ways to learn about one's students and their environment as well as involve them in the classroom process is to encourage them to develop their own problematic situations.

The provision of a good stock of information to accompany each situation is also important. The information should contain surprises that arouse further interest and should allow for the development of good solutions. This type of curriculum design requires a great amount of time and effort. But the results can be highly rewarding.

IV. Conclusion.

The methods suggested in this paper offer a way to stimulate learning where effective learning is not presently taking place.

We have argued that group problem-solving, involving aggressive verbal exchange and active solutions to real life problems, is a potent tool for helping disadvantaged children to become active learners and creative participants in the society of the future.

In essence, we are suggesting that the best way to stimulate growth in human beings is to relate to the basic human need for active, effective engagement with the environment. This can begin with open, assertive communication centered on real human problems that are felt to be significant by the human beings concerned.